

PANEL SCHEDULE PUMP (NEW)													
NAME		PUMP				ROOM NUMBER		NEW PUMP BUILDING					
MFR.	GE	AMPS	100	AIC	10,000	PHASE CONDUCTORS				1			
TYPE	LOAD CENTER	MAINS	MCB	OCB	100	NEUTRAL CONDUCTORS				1			
WIDTH	14"	VOLT LL	240	MCA	73	GROUND WIRE				8			
DEPTH	3 3/4"	VOLT LN	120	FEED LGTH	50	CONDUIT SIZE				1-1/2"			
MOUNTING	SURFACE	PHASE	1	CONAMPS	73	CONDUIT RUNS				1			
FEED	BOTTOM	WIRES	3	REMARKS	50% EQUIPMENT GROUND BAR				PERCENT VOLTAGE DROP				
BREAKER				LOAD	CIRCUIT	LOAD		CIRCUIT	LOAD	VA	LOAD	BREAKER	
AMPS	POLES	LOAD	VA	CODE	NO.	L1	L2	NO.	CODE	VA	LOAD	POLES	AMPS
20	1	LIGHTING	200	1	1		2700	2	5	2500	5KW UNIT HEATER	2	30
20	1	RCPT - INTERIOR	720	2	3	3220		4	5	2500	2#10, 1#10G, 3/4"C	-	-
20	1	RCPT - EXTERIOR	360	2	5		3240	6	5	2880	PUMP CONTROL PANEL	2	40
20	1	FAN & DAMPER	200	5	7	3080		8	5	2880	2#8, 1#10G, 3/4"C	-	-
20	1	PUMP ALARMS	500	5	9		1000	10	5	500	GENERATOR ALARMS	1	20
20	1	PUMP CONTROLS	500	5	11	1000		12	5	500	GENERATOR CONTROLS	1	20
20	1	SPARE			13		1000	14	5	1000	GEN. BATTERY CHRGR	1	20
20	1	SPARE			15	1500		16	5	1500	GENERATOR HEATER	1	20
		BUSSED SPACE			17		0	18			BUSSED SPACE		

[illegible]

1. COORDINATE MECHANICAL EQUIPMENT CONNECTIONS WITH MECHANICAL CONTRACTOR PRIOR TO BID AND ADJUST ELECTRICAL BID ACCORDINGLY FOR PROPER CONNECTION AND OPERATION OF MECHANICAL EQUIPMENT.
2. FAN AND/OR UNIT HEATER INTERLOCKED TO BE CONTROLLED VIA THERMOSTAT. E.C. TO PROVIDE THROUGH CONNECTION WITH THE THERMOSTAT.
3. LOUVER INTERLOCKED TO BE ACTIVATED VIA FAN EF-1.
4. LOUVER CONTAINS AN ELECTRIC DAMPER FOR OPERATION. E.C. TO PROVIDE THROUGH CONNECTION FOR FULLY FUNCTIONING LOUVER/DAMPER OPERATION.
5. FAN HAS INTEGRAL DAMPER. E.C. TO PROVIDE THROUGH CONNECTION FOR THE DAMPER.

DISCONNECT SCHEDULE - PUMP BUILDING										
RM. NO.	DISC CODE	TYPE (GE)	VOLTAGE	POLES	AMPS	NEMA TYPE	FUSE TYPE (BUSSMAN)	FUSE SIZE	NON-FUSED	REMARKS
PUMP BUILDING	DS-PB	HD	240	2	100	3R	FRN-R	100		NOTES 1,2

**NOTES:**

- SECURELY MOUNT ON ENCLOSURE WALL. MAINTAIN NEC REQUIRED WORKING SPACE AROUND EQUIPMENT AND DISCONNECTS.
- PROVIDE LABEL ON THE DISCONNECT SWITCH THAT INDICATES WHERE THE SERVICE FEEDING THE BUILDING IS COMING FROM, AS REQUIRED.

MARK	FIXTURE MANUFACTURER	CATALOG NUMBER	FIXTURE		LAMP		VOLTS	VA PER FIXTURE	REMARKS
			LOCATION	TYPE	TYPE	QTY			
F1	LITHONIA	DMW2-L24-3000LM-PCL- WD-MVOLT-40K-90CRI- QMB-MS110NWL	CEILING	SURFACE	LED	PER MFR	120	28	LED ENCLOSED AND GASKETED INDUSTRIAL FIXTURE; WET LOCATION POLYCARBONATE DIFFUSER; WIDE DISTRIBUTION; 4000K COLOR TEMPERATURE; CEILING MOUNTING BRACKET; MOTION SENSOR FOR ON/OFF CONTROL
F1E	LITHONIA	DMW2-L24-3000LM-PCL- WD-MVOLT-40K-90CRI- QMB-PS1050	CEILING	SURFACE	LED	PER MFR	120	28	SAME AS TYPE F1 WITH EMERGENCY LED BATTERY PACK
F2	LITHONIA	TWRT LED-T40K-MVOLT	WALL	SURFACE AT 6" ABOVE TOP OF DOOR	LED	PER MFR	120	32	EXTERIOR LED WALL LUMINAIRE; 4000K COLOR TEMPERATURE; CONTROLLED VIA SWITCH; DARK BRONZE FINISH
NOTES:									
1.	MANUFACTURER AND CATALOG NUMBERS LISTED ARE INTENDED TO INDICATE THE QUALITY OF EQUIPMENT OR MATERIALS DESIRED. ALTERNATE MANUFACTURERS ARE ACCEPTABLE. ALL SUBSTITUTIONS ARE SUBJECT TO REVIEW AND MAY BE REJECTED DURING THE SHOP DRAWING PROCESS IF IT IS DEEMED THE ALTERNATE FIXTURE(S) SUBMITTED DO NOT FULLY MEET THE DESIGN INTENT. SUBSTITUTIONS MAY BE SUBMITTED FOR PRIOR APPROVAL SUBJECT TO THE REQUIREMENTS SET FORTH IN THE FRONT END DOCUMENTS OF THE SPECIFICATIONS.								
2.	LIGHT FIXTURES AND SUPPORTS SHALL CONFORM TO UL 1598. ALL FIXTURES MUST BE PROPERLY BRACED FOR THE SEISMIC AREA.								

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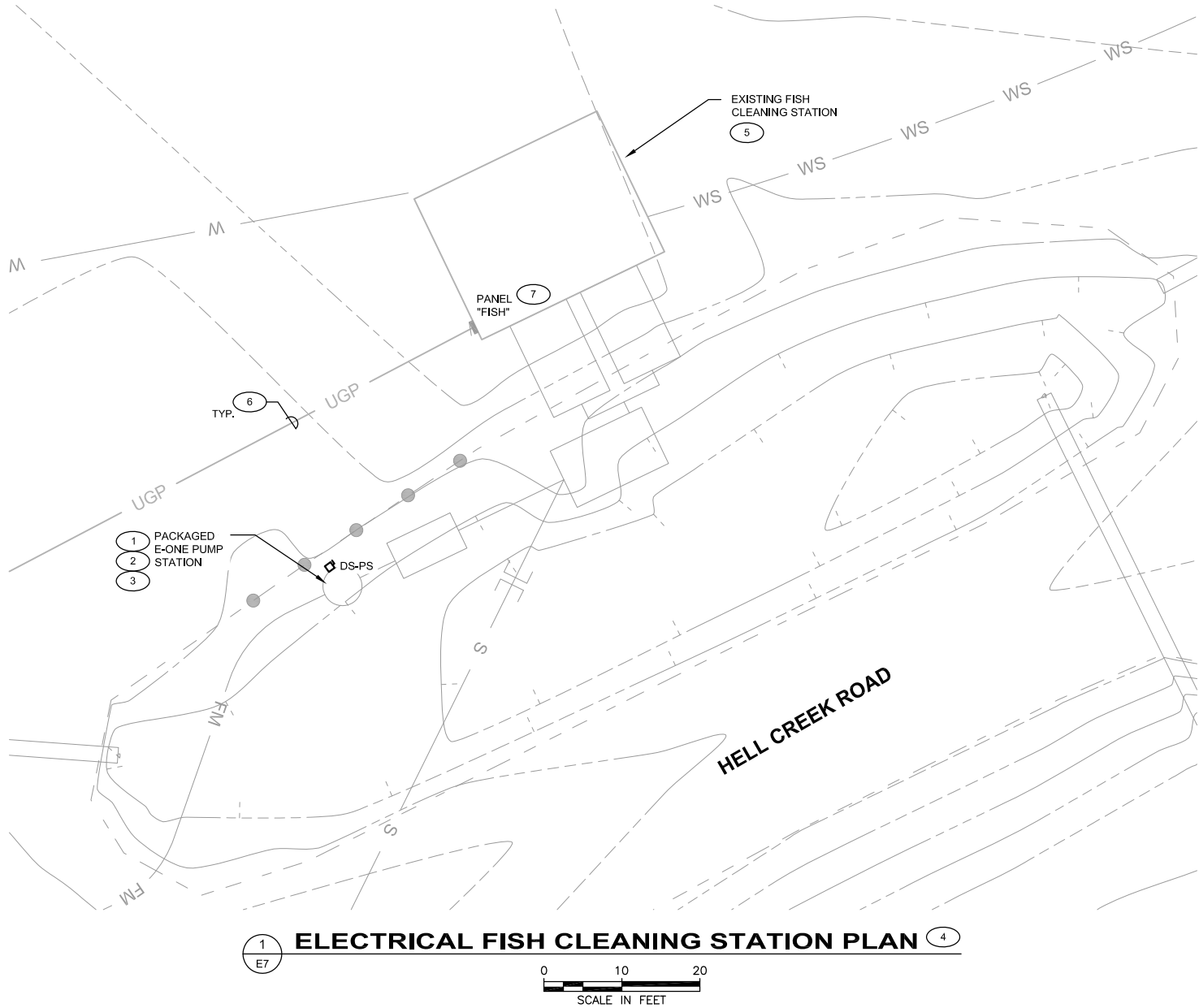


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## WATER SYSTEM SCHEDULES

# E6



## GENERAL ELECTRICAL SITE NOTES

- SEE CIVIL SITE PLANS FOR ADDITIONAL SITE INFORMATION AND REQUIREMENTS. COORDINATE SITE WORK WITH OTHER TRADES.
- ELECTRICAL TERMINATION AT SERVICE EQUIPMENT, AND ALL OTHER ELECTRICAL WORK AS INDICATED ON THIS DRAWING TO BE PERFORMED BY THE ELECTRICAL CONTRACTOR AS PART OF THEIR SCOPE OF WORK.
- ALL CONDUITS, FOR BRANCH CIRCUIT FEEDERS UNDER PAVEMENT AND LANDSCAPED AREAS SHALL BE SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE. RUN ALL CONDUITS 24" MINIMUM BELOW FINISHED GRADE. COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC).
- REPAIR LANDSCAPE AND PARKING AREAS THAT ARE DISTURBED BY THIS SCOPE OF WORK. AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION, UNLESS NOTED OTHERWISE BY PROJECT SCOPE OF WORK, COORDINATE WITH THE GENERAL CONTRACTOR.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRING, CONDUIT, ETC. FOR A COMPLETE AND OPERATIONAL SERVICE INSTALLATION.
- COORDINATE AND LOCATE ALL UTILITIES PRIOR TO ANY EXCAVATION. CALL FOR UTILITY LOCATES AND COORDINATION OF WORK PRIOR TO ALL EXCAVATIONS.
- REFER TO POWER RISER DIAGRAM - FISH CLEANING STATION E8, FOR ADDITIONAL INFORMATION REGARDING THE SERVICE WHICH IS A PART OF THIS SCOPE OF WORK.
- PROVIDE ADEQUATELY SIZED PULLBOXES FOR POWER, AS NEEDED. STUB UP CONDUIT IN PULLBOX, CAP AND LABEL, AS NEEDED. PULLBOX COVER SHALL READ "POWER" AS APPROPRIATE. PROVIDE A PULLBOX AFTER (2) 90-DEGREE BENDS OR AN ACCUMULATION OF 120-DEGREES OF TOTAL PATHWAY DEVIATION FROM A STRAIGHT LINE BETWEEN EACH ACCESS POINT. LOCATE PULLBOXES SUCH THAT THERE IS A MAXIMUM OF 400'-0" BETWEEN EACH ACCESS POINT. DO NOT LOCATE IN TRAFFIC AREAS, UNLESS SPECIFICALLY MANUFACTURED TO HANDLE VEHICLE TRAFFIC.
- REVIEW EXACT LOCATION OF PULLBOXES WITH THE CIVIL ENGINEER AND OWNER PRIOR TO START OF EXCAVATION. TYPICAL FOR ALL.
- ALL CONDUIT ROUTING SHALL BE FIELD COORDINATED. CAP AND LABEL THE CONDUITS AT BOTH ENDS, AS NEEDED. TYPICAL FOR ALL SITE CONDUIT RUNS.
- ELECTRICAL PERMIT SHALL BE OBTAINED FROM THE APPROPRIATE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO BEGINNING WORK ON ANY ELECTRICAL WIRING, EQUIPMENT, ETC. ALL ELECTRICAL WIRING TO COMPLY WITH THE REQUIREMENTS OF THE NEC.

## FLAG NOTES THIS SHEET:

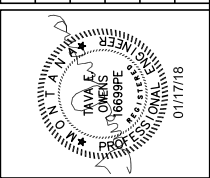
- NEW PACKAGED E-ONE PUMP STATION. PUMP STATION TO HAVE CONTROL PANEL WITH INTEGRAL CIRCUIT BREAKERS TO FEED THE PUMPS. REFER TO POWER RISER DIAGRAM - FISH CLEANING STATION, E8, FOR FEEDER INFORMATION. FIELD COORDINATE ROUTING OF THE NEW FEEDER FROM EXISTING FISH CLEANING STATION WITH THE FIELD CONDITIONS. REFER ALSO TO CIVIL PLANS FOR ADDITIONAL INFORMATION ON THE PUMP STATION. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH THE PUMP STATION INSTALLER. PROVIDE DISCONNECT SWITCH FOR THE PUMP STATION. PROVIDE UNISTRUT MOUNT FOR THE DISCONNECT SWITCH. REFER TO DISCONNECT SCHEDULE, E8, FOR ADDITIONAL INFORMATION.
- COORDINATE EXACT LOCATION AND REQUIREMENTS FOR THE PUMP EQUIPMENT IN THE PUMP STATION WITH THE PUMP SUPPLIER/INSTALLER AND THE EQUIPMENT SUPPLIED PRIOR TO ROUGH-INS. FIELD COORDINATE LOCATIONS FOR ALL STARTERS/ DISCONNECTS. ALSO FIELD COORDINATE ROUTING OF THE CONDUITS TO EACH PIECE OF EQUIPMENT. CONDUIT SHALL NOT INTERFERE WITH THE PIPING. REFER ALSO TO SEWER DETAILS ON THE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION ON THE PUMP STATION. (TYPICAL)
- PUMPS IN THE PUMP STATION TO BE PROVIDED WITH STARTERS/DISCONNECTS BY THE PUMP STATION SUPPLIER, E.G. TO PROVIDE THROUGH CONNECTION. FIELD COORDINATE EXACT REQUIREMENTS AND LOCATIONS WITH THE INSTALLER. REFER TO POWER RISER DIAGRAM - FISH CLEANING STATION, E8, FOR FEEDER SIZE. TYPICAL FOR (2) 1HP PUMPS IN THE PUMP STATION.
- ELECTRICAL CONTRACTOR TO COORDINATE ALL ALARM AND CONTROL WIRING WITH THE PUMP STATION INSTALLER.
- EXISTING FISH CLEANING STATION HAS AN EXISTING ELECTRICAL SERVICE. POWER FOR THE NEW PACKAGED E-ONE PUMP STATION SHALL COME FROM PANEL "FISH" LOCATED ON THIS BUILDING. REFER TO POWER RISER DIAGRAM - FISH CLEANING STATION, E8, FOR ADDITIONAL INFORMATION. FIELD VERIFY EXISTING CONDITIONS.
- EXISTING UNDERGROUND POWER LINES BY THE SERVING UTILITY TO REMAIN. (TYPICAL)
- EXISTING PANEL TO REMAIN AND BE UTILIZED FOR THE NEW PUMP STATION SCOPE OF WORK. REFER ALSO TO PANEL SCHEDULE "FISH", E8, FOR ADDITIONAL INFORMATION.

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PROJECT: 1-17113 (GWEI/17-005) (TESla)
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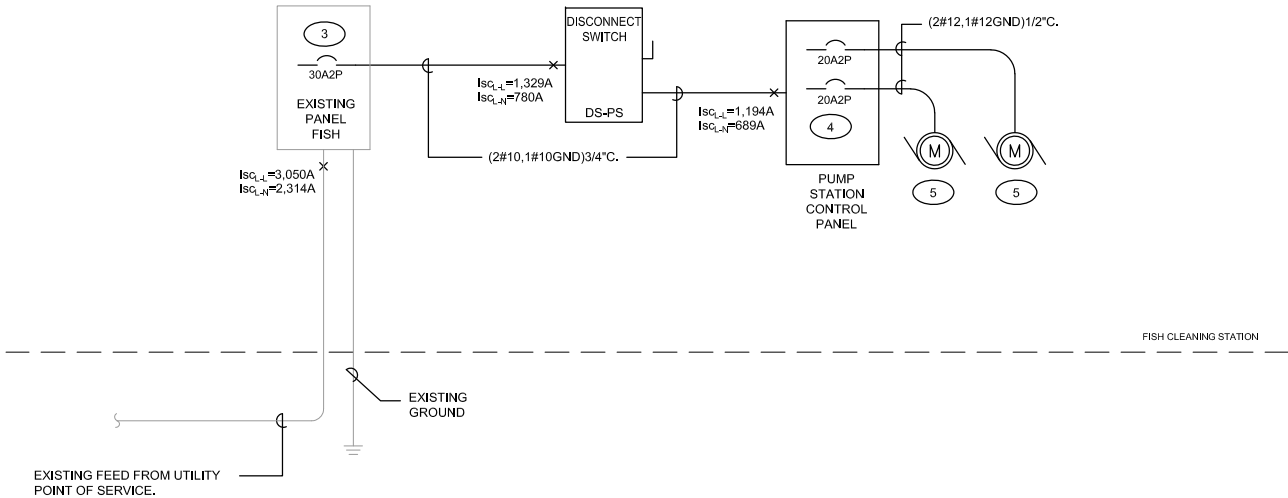
**MONTANA FISH WILDLIFE & PARKS  
HELL CREEK STATE PARK  
IMPROVEMENTS**

**ELECTRICAL FISH CLEANING STATION PLAN**

SHEET NO.

**E7**





**POWER RISER DIAGRAM - FISH CLEANING STATION**  
NOT TO SCALE 120/240V 1PH 3W SN

GENERAL RISER DIAGRAM NOTES:

- COORDINATE ALL ELECTRIC SERVICE REQUIREMENTS WITH THE LOCAL SERVING UTILITY, McCONE ELECTRIC CO-OP, (406) 485-3430.
- GROUND IN STRICT ACCORDANCE WITH NEC ARTICLE 250.
- VERIFY LOCATIONS OF ALL EXISTING SERVICE EQUIPMENT PRIOR TO BIDDING.
- ALL CONDUITS NOT SHOWN SIZED ON THE DRAWINGS SHALL BE SIZED TO NOT EXCEED 40% FILL AND SHALL COMPLY WITH NEC REQUIREMENTS.
- CIRCUIT BREAKERS SHALL BE SERIES RATED FOR AVAILABLE FAULT CURRENTS.
- SEE FLAG NOTES, THIS SHEET, FOR ADDITIONAL INFORMATION ON FEEDER AND BRANCH CIRCUIT WIRING. REFER ALSO TO PANEL SCHEDULES, THIS SHEET, FOR ADDITIONAL INFORMATION ON THE BRANCH CIRCUITS.
- INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 70 REQUIREMENTS.
- EXISTING EQUIPMENT IS SHOWN LIGHT LINE WEIGHT. NEW EQUIPMENT IS SHOWN IN DARKER LINE WEIGHT. SCOPE OF WORK INVOLVES MODIFICATION TO EXISTING PANEL, AS NOTED IN THE PANEL SCHEDULE, THIS SHEET.

FLAG NOTES THIS SHEET:

- REFER ALSO TO ELECTRICAL FISH CLEANING STATION PLAN, E7, FOR ADDITIONAL INFORMATION REGARDING THE SERVICE.
- PROVIDE TEMPORARY SERVICE, AS REQUIRED, DURING CONSTRUCTION.
- EXISTING PANEL AFFECTED BY NEW SCOPE OF WORK. PROVIDE NEW 30A2P CIRCUIT BREAKER IN THE EXISTING PANEL TO FEED THE NEW PUMP STATION. NEW CIRCUIT BREAKER SHALL BE COMPATIBLE WITH THE EXISTING PANEL TYPE. FIELD VERIFY CIRCUITS BEING MODIFIED.
- CONTROL PANEL PROVIDED WITH THE PACKAGED PUMP STATION PUMPS.
- NEW 1HP PUMP. STARTERS PROVIDED BY THE PUMP SUPPLIER WITH THE PUMPS. FIELD COORDINATE EXACT LOCATION AND REQUIREMENTS WITH THE INSTALLER AND THE EQUIPMENT PROVIDED. E.C. TO COORDINATE THE INSTALLATION OF THE PUMPS AND STARTERS. PROVIDE ALL WIRE, CONDUIT, ANCHOR BOLTS, TEMPLATES, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION OF THE UNIT. E.C. TO PROVIDE THE ELECTRICAL CONNECTIONS. TYPICAL FOR (2) PUMPS.

PANEL SCHEDULE FISH (EXISTING)															
NAME		FISH					ROOM NUMBER		FISH CLEANING STATION						
MFGR.	GE		AMPS	125	AIC	10,000		PHASE CONDUCTORS			EXIST.				
TYPE	LOAD CENTER		MAINS	MLO	OCB	100		NEUTRAL CONDUCTORS			EXIST.				
WIDTH	14"		VOLT LL	240	MCA	72		GROUND WIRE			EXIST.				
DEPTH	3 3/4"		VOLT LN	120	FEED LGTH	70		CONDUIT SIZE			1-1/2"				
MOUNTING	SURFACE		PHASE	1	CONAMPS	71		CONDUIT RUNS			1				
FEED	BOTTOM		WIRES	3	REMARKS						PERCENT VOLTAGE DROP			0.3%	
BREAKER				LOAD	CIRCUIT	LOAD		CIRCUIT	LOAD	VA	LOAD		BREAKER		
AMPS	POLES			VA	LOAD CODE	CIRCUIT NO.	L1	L2	CIRCUIT NO.	LOAD CODE	VA			POLES	AMPS
		BUSSED SPACE				1		0	2			BUSSED SPACE			
		BUSSED SPACE				3	0		4			BUSSED SPACE			
		BUSSED SPACE				5		360	6	2	360	RCPT - FISH STA. SOUTH		1	15
20	1	LTS - FISH STATION		400	1	7	760		8	2	360	RCPT - FISH STA. NORTH		1	15
20	1	RCPT - FISH STA. SOUTH		360	2	9		360	10			BUSSED SPACE			
20	1	RCPT - FISH STA. WEST		360	2	11	360		12			BUSSED SPACE			
30	2	E-ONE PUMP STATION		1920	5	13		7420	14	5	5500	GRINDER		2	60
-	-	2#10, 1#10G, 3/4"C		1920	5	15	7420		16	5	5500	-		-	-

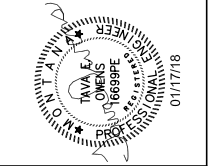
\* PROVIDE NEW 30A2P CIRCUIT BREAKER COMPATIBLE WITH EXISTING PANEL TYPE. FIELD VERIFY EXISTING CIRCUIT BEING MODIFIED.

DISCONNECT SCHEDULE - FISH STATION PUMP STATION										
RM. NO.	DISC CODE	TYPE (GE)	VOLTAGE	POLES	AMPS	NEMA TYPE	FUSE TYPE (BUSSMAN)	FUSE SIZE	NON-FUSED	REMARKS
FISH STATION	DS-PS	HD	240	2	30	3R			X	NOTE 1
NOTES:										
1. SECURELY MOUNT ON UNISTRUT FRAME. MAINTAIN NEC REQUIRED WORKING SPACE AROUND EQUIPMENT AND DISCONNECTS.										

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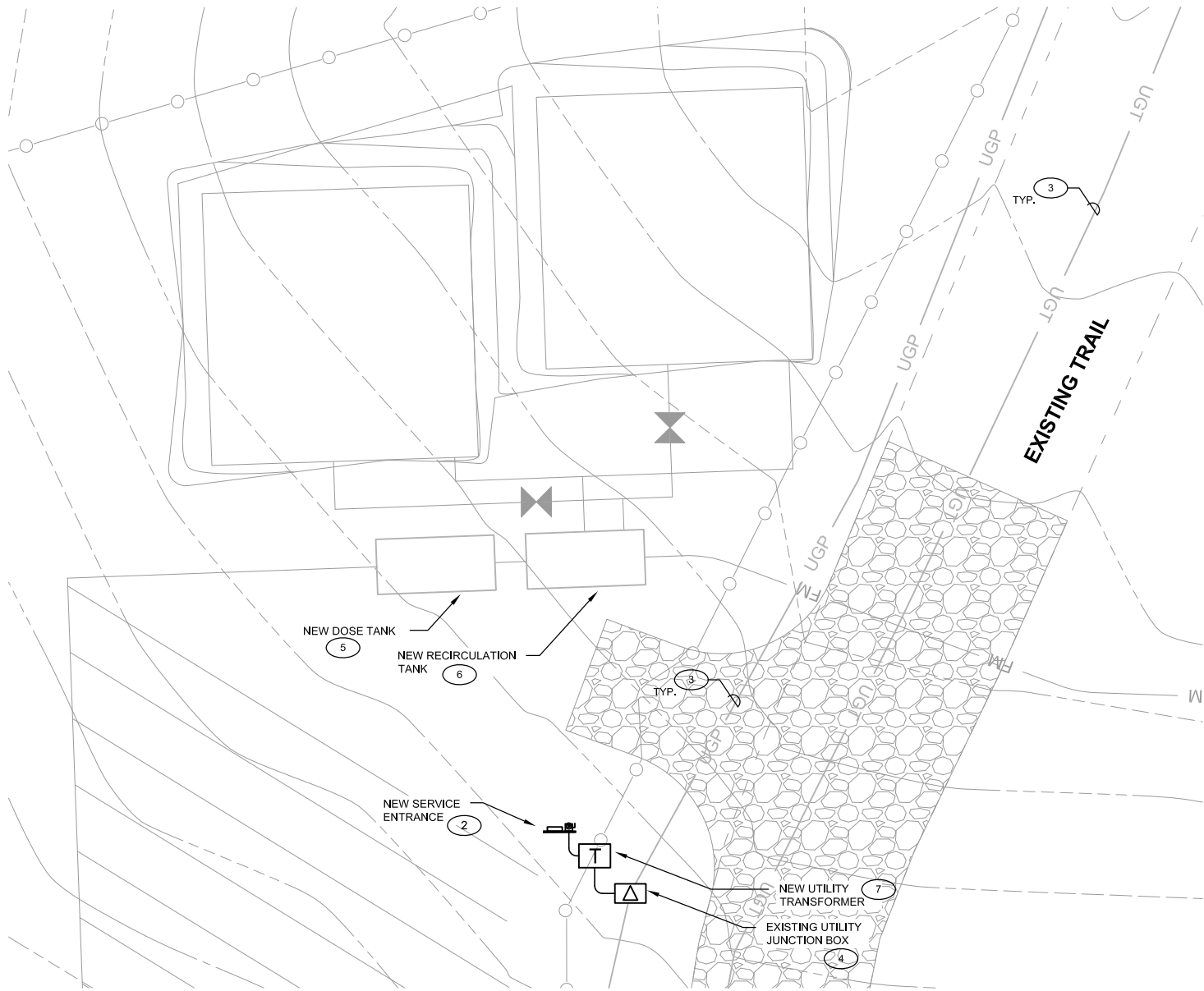


**MONTANA FISH WILDLIFE & PARKS  
HELL CREEK STATE PARK  
IMPROVEMENTS**

POWER RISER DIAGRAM - FISH CLEANING STATION  
AND SCHEDULES

SHEET NO.

**E8**



1 E9 ELECTRICAL SAND FILTER AND DRAINFIELD PLAN 1

0 10 20  
SCALE IN FEET



## GENERAL ELECTRICAL SITE NOTES

- SEE CIVIL SITE PLANS FOR ADDITIONAL SITE INFORMATION AND REQUIREMENTS. COORDINATE SITE WORK WITH OTHER TRADES.
- ELECTRICAL TERMINATION AT SERVICE EQUIPMENT, AND ALL OTHER ELECTRICAL WORK AS INDICATED ON THIS DRAWING TO BE PERFORMED BY THE ELECTRICAL CONTRACTOR AS PART OF THEIR SCOPE OF WORK.
- ALL CONDUITS, FOR BRANCH CIRCUIT FEEDERS UNDER PAVEMENT AND LANDSCAPED AREAS SHALL BE SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE. RUN ALL CONDUITS 24" MINIMUM BELOW FINISHED GRADE. COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC).
- REFER TO ELECTRICAL DETAILS, E11, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- REPAIR LANDSCAPE AND PARKING AREAS THAT ARE DISTURBED BY THIS SCOPE OF WORK. AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION, UNLESS NOTED OTHERWISE BY PROJECT SCOPE OF WORK. COORDINATE WITH THE GENERAL CONTRACTOR.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRING, CONDUIT, METERING, ETC. FOR A COMPLETE AND OPERATIONAL SERVICE INSTALLATION.
- COORDINATE AND LOCATE ALL UTILITIES PRIOR TO ANY EXCAVATION. CALL FOR UTILITY LOCATES AND COORDINATION OF WORK PRIOR TO ALL EXCAVATIONS.
- REFER TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, FOR ADDITIONAL INFORMATION REGARDING THE SERVICE WHICH IS A PART OF THIS SCOPE OF WORK.
- PROVIDE ADEQUATELY SIZED PULLBOXES FOR POWER, AS NEEDED. STUB UP CONDUIT IN PULLBOX, CAP AND LABEL, AS NEEDED. PULLBOX COVER SHALL READ "POWER," AS APPROPRIATE. PROVIDE A PULLBOX AFTER (2) 90-DEGREE BENDS OR AN ACCUMULATION OF 120-DEGREES OF TOTAL PATHWAY DEVIATION FROM A STRAIGHT LINE BETWEEN EACH ACCESS POINT. LOCATE PULLBOXES SUCH THAT THERE IS A MAXIMUM OF 400'-0" BETWEEN EACH ACCESS POINT. DO NOT LOCATE IN TRAFFIC AREAS, UNLESS SPECIFICALLY MANUFACTURED TO HANDLE VEHICLE TRAFFIC.
- REVIEW EXACT LOCATION OF PULLBOXES WITH THE CIVIL ENGINEER AND OWNER PRIOR TO START OF EXCAVATION. TYPICAL FOR ALL.
- ALL CONDUIT ROUTING SHALL BE FIELD COORDINATED. CAP AND LABEL THE CONDUITS AT BOTH ENDS, AS NEEDED. TYPICAL FOR ALL SITE CONDUIT RUNS.
- ELECTRICAL PERMIT SHALL BE OBTAINED FROM THE APPROPRIATE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO BEGINNING WORK ON ANY ELECTRICAL WIRING, EQUIPMENT, ETC. ALL ELECTRICAL WIRING TO COMPLY WITH THE REQUIREMENTS OF THE NEC.

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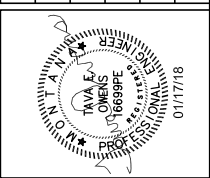
- COORDINATE ELECTRICAL SERVICE REQUIREMENTS WITH UTILITY COMPANY AND OWNER. UTILITY COMPANY IS McCONE ELECTRIC CO-OP, TELEPHONE NUMBER (406) 485-3430. SERVICE APPLICATION MUST BE SUBMITTED IN A TIMELY MANNER FOR PROGRESS OF WORK TO MEET THE CONSTRUCTION SCHEDULE. COORDINATE WITH THE OWNER AND GENERAL CONTRACTOR.
- LOCATION FOR NEW ELECTRICAL SERVICE ENTRANCE, INCLUDING SELF-CONTAINED 200A SERVICE METER/DISCONNECT AND PANEL. EQUIPMENT SHALL BE MOUNTED ON AN EQUIPMENT RACK. REFER TO ELECTRICAL DETAILS, E11, FOR ADDITIONAL INFORMATION ON THE MOUNTING OF THE SERVICE ENTRANCE EQUIPMENT. COORDINATE LOCATIONS WITH THE UTILITY AND THE FIELD CONDITIONS. INSTALL SUCH THAT MINIMUM WORKING CLEARANCES ARE MAINTAINED IN FRONT OF THE METER AND MAIN DISCONNECT. REFER ALSO TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, FOR ADDITIONAL INFORMATION. SERVICE INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 70 AND UTILITY REQUIREMENTS.
- EXISTING UNDERGROUND POWER AND TELEPHONE LINES BY THE SERVING UTILITIES TO REMAIN. (TYPICAL)
- LOCATION OF EXISTING UTILITY JUNCTION BOX FOR SERVICE. FIELD VERIFY EXACT LOCATION.
- LOCATION OF DOSE TANK WITH (1) SET OF DUPLEX PUMPS AND HIGH LEVEL ALARMS SYSTEM. REFER TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, FOR FEEDER INFORMATION. FIELD COORDINATE ROUTING OF THE NEW FEEDER TO THE PUMPS. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH THE PUMP INSTALLER. TANKS WILL HAVE INTEGRAL FLOAT SWITCHES FOR CONTROL OF THE PUMPS. ELECTRICAL CONTRACTOR RESPONSIBLE FOR MAKING ALL THROUGH CONNECTIONS FOR THE FLOAT SWITCHES AND CONTROLS. REFER ALSO TO CIVIL PLANS FOR ADDITIONAL INFORMATION ON THE DOSE TANK AND ASSOCIATED PUMPS.
- LOCATION OF RECIRCULATION TANK WITH (1) SET OF DUPLEX PUMPS AND HIGH LEVEL ALARMS SYSTEM. REFER TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, FOR FEEDER INFORMATION. FIELD COORDINATE ROUTING OF THE NEW FEEDER TO THE PUMPS. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH THE PUMP INSTALLER. TANKS WILL HAVE INTEGRAL FLOAT SWITCHES FOR CONTROL OF THE PUMPS. ELECTRICAL CONTRACTOR RESPONSIBLE FOR MAKING ALL THROUGH CONNECTIONS FOR THE FLOAT SWITCHES AND CONTROLS. REFER ALSO TO CIVIL PLANS FOR ADDITIONAL INFORMATION ON THE RECIRCULATION TANK AND ASSOCIATED PUMPS.
- NEW PAD-MOUNTED UTILITY TRANSFORMER. COORDINATE LOCATION WITH THE FIELD CONDITIONS AND THE SERVING UTILITY. NEW TRANSFORMER WILL BE SET ON A CONCRETE PAD. INSTALL SUCH THAT MINIMUM WORKING CLEARANCES ARE MAINTAINED AROUND THE TRANSFORMER AND IN FRONT OF THE DOORS. REFER ALSO TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, FOR ADDITIONAL INFORMATION.

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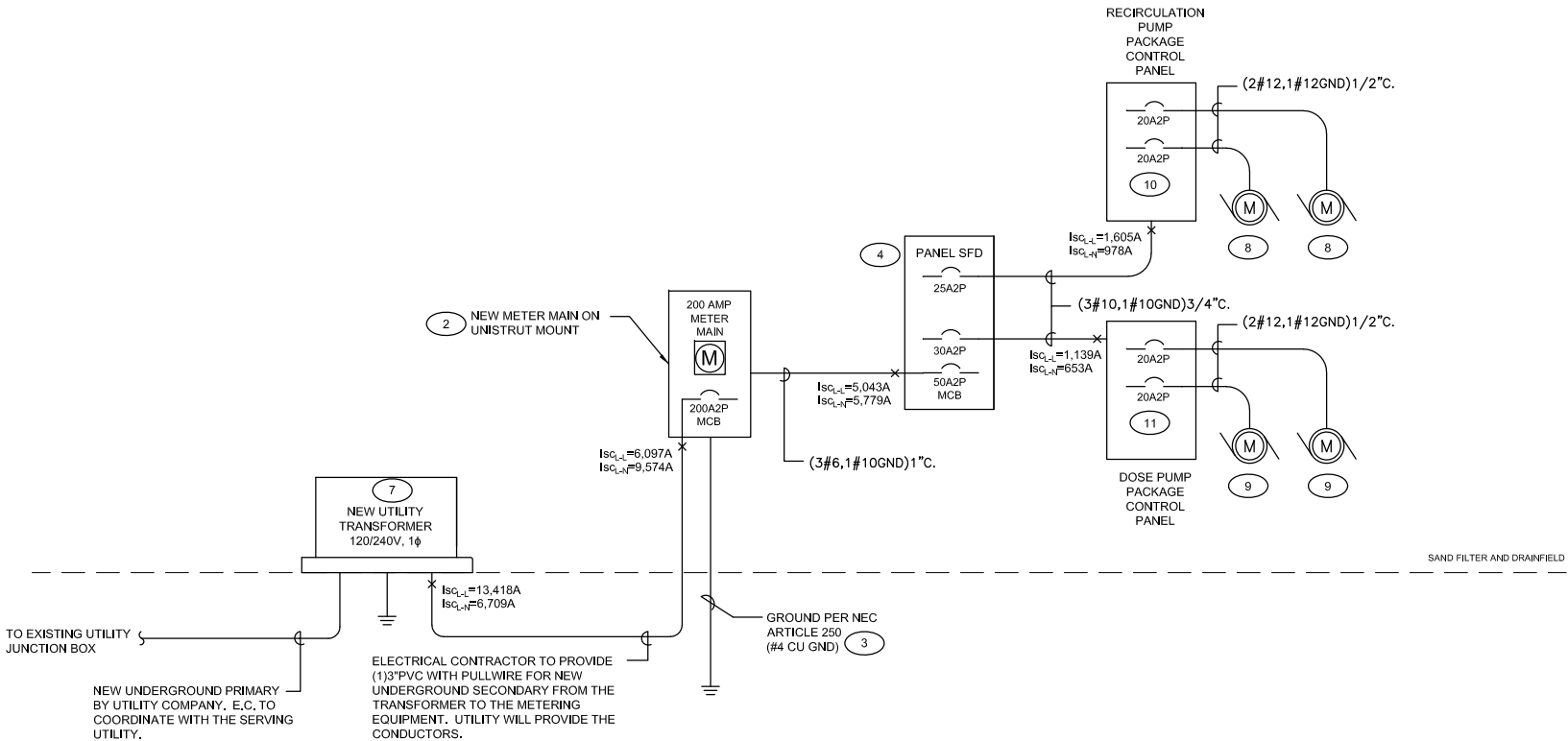


MONTANA FISH WILDLIFE & PARKS  
HELL CREEK STATE PARK  
IMPROVEMENTS

ELECTRICAL SAND FILTER AND DRAINFIELD PLAN

SHEET NO.

E9



1 POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD 1 5 6  
E10 NOT TO SCALE 120/240V 1PH 3W SN

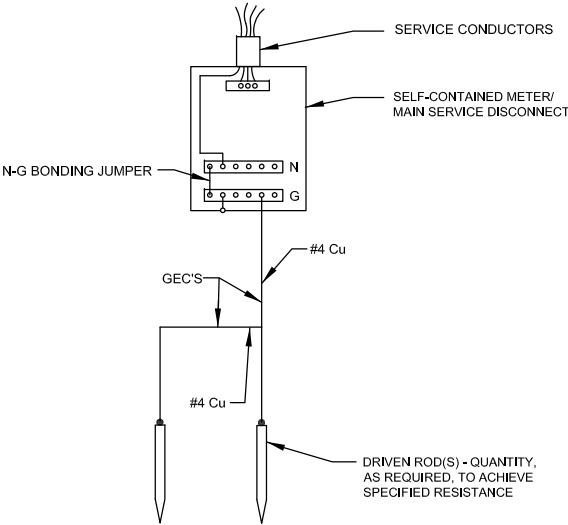
PANEL SCHEDULE SFD (NEW)													
NAME		SFD				ROOM NUMBER		SAND FILTER & DRAINFIELD					
MFGR.	GE	AMPS	70	AIC	10,000	PHASE CONDUCTORS			6				
TYPE	LOAD CENTER	MAINS	MCB	OCB	50	NEUTRAL CONDUCTORS			6				
WIDTH	14"	VOLT LL	240	MCA	33	GROUND WIRE			10				
DEPTH	3 3/4"	VOLT LN	120	FEED LGTH	50	CONDUIT SIZE			1"				
MOUNTING	SURFACE	PHASE	1	CONAMPS	34	CONDUIT RUNS			1				
FEED	BOTTOM	WIRES	3	REMARKS		PERCENT VOLTAGE DROP			0.3%				
BREAKER		LOAD	VA	LOAD CODE	CIRCUIT NO.	LOAD		CIRCUIT NO.	LOAD CODE	VA	LOAD	BREAKER	
AMPS	POLES					L1	L2					POLES	AMPS
25	2	RECIRC. PUMP CNTRL PNL	1920	5	1		3640	2	5	1920	DOSE PUMP CNTRL PNL	2	25
-	-	3#10, 1#10G, 3/4"C	1920	5	3	3640		4	5	1920	3#10, 1#10G, 3/4"C	-	-
20	1	RCPT - BELOW PANEL	180	2	5		180	6			SPARE	1	20
20	1	SPARE			7	0		8			SPARE	1	20
		BUSSED SPACE			9		0	10			BUSSED SPACE		
		BUSSED SPACE			11	0		12			BUSSED SPACE		

GENERAL RISER DIAGRAM NOTES:

- COORDINATE ALL ELECTRIC SERVICE REQUIREMENTS WITH THE LOCAL SERVING UTILITY, McCONE ELECTRIC CO-OP, (406) 485-3430.
- PROVIDE SELF-CONTAINED METER/DISCONNECT, CONDUIT, GROUND RODS, ETC., CONFORMING WITH UTILITY COMPANY REGULATIONS AND NEC STANDARDS. UTILITY COMPANY WILL PROVIDE METER.
- GROUND IN STRICT ACCORDANCE WITH NEC ARTICLE 250.
- VERIFY LOCATIONS OF ALL UTILITY SERVICE EQUIPMENT AND THE UTILITY REQUIREMENTS PRIOR TO BIDDING.
- ALL CONDUITS NOT SHOWN SIZED ON THE DRAWINGS SHALL BE SIZED TO NOT EXCEED 40% FILL AND SHALL COMPLY WITH NEC REQUIREMENTS.
- CIRCUIT BREAKERS SHALL BE SERIES RATED FOR AVAILABLE FAULT CURRENTS.
- SEE FLAG NOTES, THIS SHEET, FOR FEEDER AND BRANCH CIRCUIT WIRING INFORMATION NOT DESIGNATED ON THE RISER DIAGRAM, REFER ALSO TO PANEL SCHEDULE, THIS SHEET, FOR ADDITIONAL INFORMATION ON THE BRANCH CIRCUITS.
- SERVICE INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 70 AND UTILITY REQUIREMENTS.

FLAG NOTES THIS SHEET:

- COORDINATE ALL NEW ELECTRICAL SERVICE REQUIREMENTS WITH UTILITY COMPANY AND OWNER PRIOR TO BID AND ADJUST BID ACCORDINGLY. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE 200A SELF-CONTAINED METER BASE WITH 200A DISCONNECT; GROUNDING AT THE METER MAIN, AND THE CONDUIT RISER. ALL SERVICE CONDUCTORS WILL BE PROVIDED AND INSTALLED BY THE UTILITY. THE UTILITY WILL ALSO PROVIDE AND INSTALL THE METER IN THE METER BASE.
- PROVIDE AND INSTALL 200A METER MAIN CONFORMING TO THE UTILITY COMPANY REQUIREMENTS. METER BASE MUST BE RATED FOR 200A WITH LUGS CAPABLE OF ACCEPTING #4/0 ALUMINUM WIRE. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE METER BASE AND GROUNDING AT THE METER BASE. COORDINATE WITH McCONE ELECTRIC CO-OP.
- CONNECT THE GROUND TO ALL AVAILABLE GROUNDING ELECTRODES INCLUDING DRIVEN GROUND ROD(S). REFER ALSO TO GROUNDING ELECTRODE SYSTEM DETAIL, THIS SHEET, FOR ADDITIONAL INFORMATION. GROUND RODS MUST HAVE A RESISTANCE TO GROUND OF 25 OHMS OR LESS OR ADDITIONAL RODS SHALL BE ADDED. MINIMUM (2) GROUND RODS SPACED A MINIMUM OF 20'-0" APART.
- CONNECT NEW PANEL "SFD" TO THE NEW METER MAIN. PROVIDE UNISTRUT RACK MOUNTING FOR THE METER/MAIN DISCONNECT AND THE NEW PANEL. REFER TO ELECTRICAL DETAILS, E11, FOR ADDITIONAL INFORMATION.
- REFER ALSO TO ELECTRICAL SAND FILTER AND DRAINFIELD PLAN, E9, FOR ADDITIONAL INFORMATION REGARDING THE INCOMING SERVICE.
- PROVIDE TEMPORARY SERVICE, AS REQUIRED, DURING CONSTRUCTION.
- NEW PAD-MOUNTED TRANSFORMER BY UTILITY COMPANY. FIELD COORDINATE LOCATION WITH THE SERVING UTILITY. COORDINATE REQUIREMENTS FOR THE CONCRETE PAD WITH THE GENERAL CONTRACTOR. TRANSFORMER GROUND SHALL BE BY THE ELECTRICAL CONTRACTOR.
- NEW 1HP RECIRCULATION PUMP. STARTERS PROVIDED BY THE PUMP SUPPLIER WITH THE PUMPS. FIELD COORDINATE EXACT LOCATION AND REQUIREMENTS WITH THE INSTALLER AND THE EQUIPMENT PROVIDED. E.C. TO FIELD COORDINATE THE INSTALLATION OF THE PUMPS. PROVIDE ALL WIRE, CONDUIT, ANCHOR BOLTS, TEMPLATES, ETC., AS REQUIRED FOR A COMPLETE INSTALLATION OF THE SYSTEM. E.C. TO PROVIDE THE ELECTRICAL CONNECTIONS. TYPICAL FOR (2) PUMPS.
- NEW 1HP DOSE PUMP. STARTERS PROVIDED BY THE PUMP SUPPLIER WITH THE PUMPS. FIELD COORDINATE EXACT LOCATION AND REQUIREMENTS WITH THE INSTALLER AND THE EQUIPMENT PROVIDED. E.C. TO FIELD COORDINATE THE INSTALLATION OF THE PUMPS. PROVIDE ALL WIRE, CONDUIT, ANCHOR BOLTS, TEMPLATES, ETC., AS REQUIRED FOR A COMPLETE INSTALLATION OF THE SYSTEM. E.C. TO PROVIDE THE ELECTRICAL CONNECTIONS. TYPICAL FOR (2) PUMPS.
- CONTROL PANEL PROVIDED WITH THE DUPLEX RECIRCULATION PUMPS.
- CONTROL PANEL PROVIDED WITH THE DUPLEX DOSE PUMPS.



GROUNDING ELECTRODE SYSTEM - SAND FILTER AND DRAINFIELD

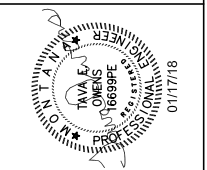
2 E10 NOT TO SCALE

TESla Engineering, LLC

ELECTRICAL ENGINEERING CONSULTANTS  
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NO.	REVISION DESCRIPTION	BY	DATE
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3			
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5			

PROJECT: 1-17113 (GWE)17-005 (TESla)
DESIGNED: TEO
DRAWN: TEO
CHECKED: TEO
APPROVED: TEO
DATE: JANUARY 17, 2018



MONTANA FISH WILDLIFE & PARKS  
HELL CREEK STATE PARK  
IMPROVEMENTS  
POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD  
AND SCHEDULES

SHEET NO.

E10



TABLE "A" WORKING CLEARANCES				
VOLTAGE TO GROUND, NOMINAL	CONDITION:    1                    2                    3			
		MIN. CLEAR DISTANCE (FT.)		
0-150		3	3½"	3
151-600		3	3½"	3

WHERE THE CONDITIONS ARE AS FOLLOWS:

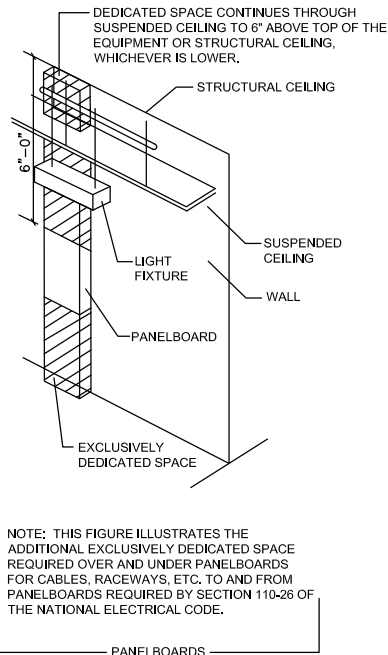
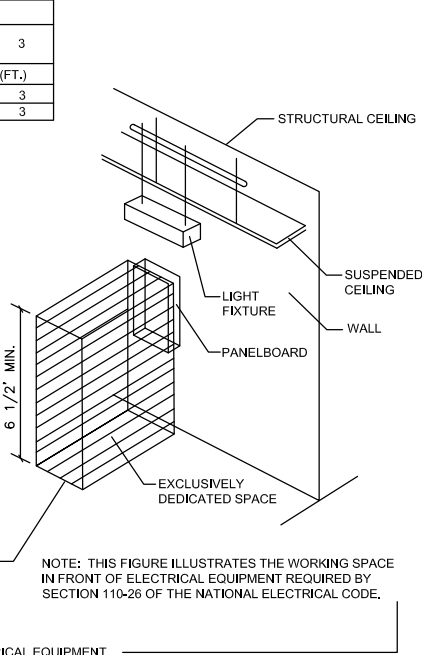
1. EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUS BARS OPERATING AT NOT OVER 300 VOLTS SHALL NOT BE CONSIDERED LIVE PARTS.

2. EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.

3. EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

NOTE: THIS INCLUDES, BUT IS NOT LIMITED TO, PANELBOARDS, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES AND OTHER ELECTRICAL EQUIPMENT.

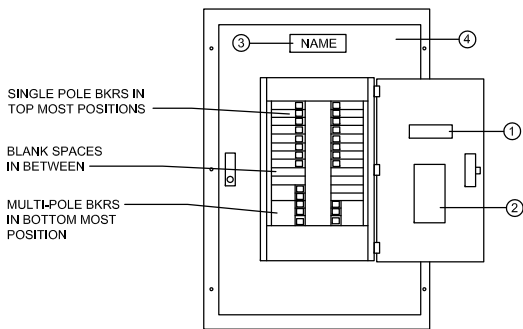
30" OR WIDTH OF EQUIPMENT IF EQUIPMENT IS WIDER THAN 30" DOES NOT HAVE TO BE CENTERED ON THE EQUIPMENT, BUT AT LEAST EVEN WITH ONE EDGE. EQUIPMENT DOOR SHALL BE ABLE TO OPEN AT LEAST 90 DEG.



NOTE: NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER, OR PASS THROUGH THE DEDICATED SPACES ABOVE.

### 1 DEDICATED WORKING SPACE REQUIREMENTS FOR ELEC. EQUIPMENT

E11 NOT TO SCALE

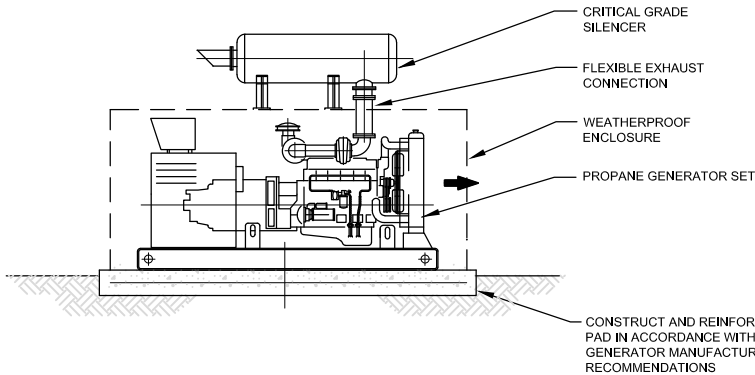


NOTES:

- 1 PROVIDE PAPER, ADHESIVE BACKED, LABEL IDENTIFYING THE FOLLOWING:  
A. PANELBOARD NAME  
B. FEEDER SOURCE, BKR SIZE & NO.  
C. FEEDER SIZE - CABLE(S) & RACEWAY
- 2 STANDARD CIRCUIT DIRECTORY, TO BE COMPLETED BY THE ELECTRICAL CONTRACTOR
- 3 ENGRAVED NAMEPLATE IDENTIFYING PANELBOARD NAME.
- 4 LOCKABLE "DOOR-IN-DOOR" STYLE DOOR & TRIM ASSEMBLY.

### 3 TYPICAL DOOR-IN-DOOR PANELBOARD

E11 NOT TO SCALE

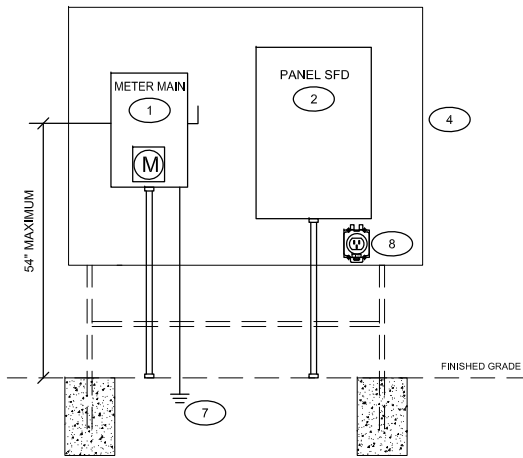


NOTES:

1. SECTION THROUGH GENERATOR SHOWN FOR REFERENCE. SPECIFIC CONSTRUCTION OF GENERATOR WILL VARY, DEPENDING ON THE MANUFACTURER. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

### 4 SECTION THROUGH GENERATOR

E11 NOT TO SCALE REFERENCE



### 5 SAND FILTER AND DRAINFIELD - ELECTRICAL EQUIPMENT RACK DETAIL

E11 NOT TO SCALE

### RACK DETAIL FLAG NOTES:

- 1 METER MAIN FOR THE ELECTRICAL SERVICE, REFER TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 2 NEW PANEL "SFD". REFER TO POWER RISER DIAGRAM - SAND FILTER AND DRAINFIELD, E10, AND PANEL SCHEDULE, E10, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 3 ALL CONDUIT AND FITTINGS TO BE GRAY, SCHEDULE 80 PVC CONDUIT.
- 4 PROVIDE PLYWOOD BACKBOARD FOR MOUNTING OF THE METER/MAIN DISCONNECT, PANEL AND OUTLET ON IT. DIMENSIONS SHALL BE ADEQUATE TO ACCOMMODATE ALL THE EQUIPMENT. USE FLEX CONNECTORS. VERTICAL SUPPORTS SHALL BE CONCRETE ENCASED, PROVIDE APPROPRIATE UNISTRUT MOUNTING SO THAT IT IS A STURDY, STAND-ALONE RACK THAT CAN WITHSTAND A MINIMUM 60mph WIND WITH GUSTS TO 100mph. COORDINATE LOCATION OF THE UNISTRUT RACK WITH THE OWNER AND PUMP INSTALLER. DISCONNECT FOR THE ELECTRICAL SERVICE SHALL BE IN AN ACCESSIBLE LOCATION. TYPICAL ELEVATION IS SHOWN. FIELD MODIFY, AS NECESSARY. VERIFY DIMENSIONS OF ALL EQUIPMENT WITH WHAT IS BEING SUPPLIED PRIOR TO FABRICATION OF THE BACKBOARD.
- 5 ALL SCREWS, NUTS, BOLTS, STRAPS, AND SIMILAR CONNECTORS SHALL BE STEEL. PROVIDE NEOPRENE PAD AND/OR FIBER WASHERS BETWEEN DISSIMILAR METALS. (TYPICAL)
- 6 ALL BOXES, FITTINGS AND PIPES TO BE NEMA 3R RATED.
- 7 GROUND RODS MUST HAVE A RESISTANCE TO GROUND OF 25 OHMS OR LESS OR ADDITIONAL RODS SHALL BE ADDED, MINIMUM (2) GROUND RODS SPACED A MINIMUM OF 10'-0" APART.
- 8 PROVIDE (1) L5-20R, 20A1P, TWIST-LOCK, GFI RECEPTACLES WITH WEATHERPROOF COVER. CONNECT TO CIRCUIT, AS INDICATED ON THE PANEL SCHEDULE, E10. MOUNT BELOW THE PANEL.

MONTANA FISH WILDLIFE & PARKS  
HELL CREEK STATE PARK  
IMPROVEMENTS  
ELECTRICAL DETAILS

SHEET NO.

E11

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